AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for facilitating high speed network packet flow by~~for~~ resolving conflicts between network service rules for network data traffic in a system where rule patterns with longer prefixes match before rule patterns with shorter prefixes, comprising:

collapsing various operations related to managing network flows into a single flow classification and dispatch step;

receiving a set of network service rules for network data traffic from multiple network services, wherein network service rules from different network services can possibly conflict;

wherein each of the network service rules specifies, a filter that defines a prefix for a set of packets in the packet flow, and an action list that specifies one or more actions to be applied to the set of packets;

identifying a conflict between a higher priority rule and a lower priority rule in the set of network service rules; ~~and~~

resolving the conflict by prepending an action list of the higher priority rule to an action list of a rule with a filter that defines a longer prefix; and

applying a consistent set of rules to a switching mechanism to facilitate packet flow management .

2. (Original) The method of claim 1, wherein if the set of packets associated with the higher priority rule is equal to the set of packets associated

with the lower priority rule, resolving the conflict involves creating a new action list for the higher priority rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

3. (Original) The method of claim 1, wherein if the set of packets associated with the higher priority rule is a superset of the set of packets associated with the lower priority rule, resolving the conflict involves creating a new action list for the lower priority rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

4. (Original) The method of claim 1, wherein if the set of packets associated with the lower priority rule is a superset of the set of packets associated with the higher priority rule, resolving the conflict involves creating a new action list for the higher priority rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

5. (Original) The method of claim 1, wherein if the set of packets associated with the lower priority rule intersects the set of packets associated with the higher priority rule, resolving the conflict involves:

creating a new rule with a filter that defines the intersection of the set of packets associated with lower priority rule and the set of packets associated with the higher priority rule; and

creating an action list for the new rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

6. (Original) The method of claim 1, wherein prior to modifying a rule in the set of network service rules, the method further comprises cloning the

rule to ensure that potential conflicts with rules that appear later in the set of network service rules are not overlooked.

7. (Original) The method of claim 1, wherein the priority of a given rule is based upon one or more of the following:

a priority associated with a network service from which given rule originated;

a count of the number of prefix bits specified by the filter for the given rule; and

a time stamp indicating when the given rule was incorporated into the set of network service rules.

8. (Original) The method of claim 1, wherein an action specified by a network service rule can include, but is not limited to:

dropping a packet;

gathering statistical information about the packet;

controlling timer functions associated with the packet;

modifying the packet; and

passing the packet on.

9. (Original) The method of claim 1, wherein the multiple network services can include, but is not limited to:

a firewall service;

a service level agreement monitoring service;

a load balancing service;

a transport matching service;

a failover service; and

a high availability service.

10. (Currently Amended) A computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for resolving conflicts between network service rules for network data traffic in a system where rule patterns with longer prefixes match before rule patterns with shorter prefixes, the method comprising:

collapsing various operations related to managing network flows into a single flow classification and dispatch step;

receiving a set of network service rules for network data traffic from multiple network services, wherein network service rules from different network services can possibly conflict;

wherein each of the network service rules specifies, a filter that defines a prefix for a set of packets in the packet flow, and an action list that specifies one or more actions to be applied to the set of packets;

identifying a conflict between a higher priority rule and a lower priority rule in the set of network service rules; and

resolving the conflict by prepending an action list of the higher priority rule to an action list of a rule with a filter that defines a longer prefix.

11. (Original) The computer-readable storage medium of claim 10, wherein if the set of packets associated with the higher priority rule is equal to the set of packets associated with the lower priority rule, resolving the conflict involves creating a new action list for the higher priority rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

12. (Original) The computer-readable storage medium of claim 10, wherein if the set of packets associated with the higher priority rule is a superset of the set of packets associated with the lower priority rule, resolving the conflict

involves creating a new action list for the lower priority rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

13. (Original) The computer-readable storage medium of claim 10, wherein if the set of packets associated with the lower priority rule is a superset of the set of packets associated with the higher priority rule, resolving the conflict involves creating a new action list for the higher priority rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

14. (Original) The computer-readable storage medium of claim 10, wherein if the set of packets associated with the lower priority rule intersects the set of packets associated with the higher priority rule, resolving the conflict involves:

creating a new rule with a filter that defines the intersection of the set of packets associated with lower priority rule and the set of packets associated with the higher priority rule; and

creating an action list for the new rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

15. (Original) The computer-readable storage medium of claim 10, wherein prior to modifying a rule in the set of network service rules, the method further comprises cloning the rule to ensure that potential conflicts with rules that appear later in the set of network service rules are not overlooked.

16. (Original) The computer-readable storage medium of claim 10, wherein the priority of a given rule is based upon one or more of the following:

a priority associated with a network service from which given rule originated;

a count of the number of prefix bits specified by the filter for the given rule; and

a time stamp indicating when the given rule was incorporated into the set of network service rules.

17. (Original) The computer-readable storage medium of claim 10, wherein an action specified by a network service rule can include, but is not limited to:

dropping a packet;

gathering statistical information about the packet;

controlling timer functions associated with the packet;

modifying the packet; and

passing the packet on.

18. (Original) The computer-readable storage medium of claim 10, wherein the multiple network services can include, but is not limited to:

a firewall service;

a service level agreement monitoring service;

a load balancing service;

a transport matching service;

a failover service; and

a high availability service.

19. (Currently Amended) An apparatus that resolves conflicts between network service rules for network data traffic in a system where rule patterns with longer prefixes match before rule patterns with shorter prefixes, comprising:

a mechanism configured to collapse various operations related to managing network flows into a single flow classification and dispatch step;

a receiving mechanism configured to receive a set of network service rules for network data traffic from multiple network services, wherein network service rules from different network services can possibly conflict;

wherein each of the network service rules specifies, a filter that defines a prefix for a set of packets in the packet flow, and an action list that specifies one or more actions to be applied to the set of packets;

a conflict detection mechanism configured to identify a conflict between a higher priority rule and a lower priority rule in the set of network service rules; and

a conflict resolution mechanism configured to resolve the conflict by prepending an action list of the higher priority rule to an action list of a rule with a filter that defines a longer prefix.

20. (Original) The apparatus of claim 19, wherein if the set of packets associated with the higher priority rule is equal to the set of packets associated with the lower priority rule, the conflict resolution mechanism is configured to:

create a new action list for the higher priority rule by prepending the action list of the higher priority rule to the action list of the lower priority rule; and to

delete the lower priority rule.

21. (Original) The apparatus of claim 19, wherein if the set of packets associated with the higher priority rule is a superset of the set of packets associated with the lower priority rule, the conflict resolution mechanism is configured to create a new action list for the lower priority rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

22. (Original) The apparatus of claim 19, wherein if the set of packets associated with the lower priority rule is a superset of the set of packets associated

with the higher priority rule, the conflict resolution mechanism is configured to create a new action list for the higher priority rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

23. (Original) The apparatus of claim 19, wherein if the set of packets associated with the lower priority rule intersects the set of packets associated with the higher priority rule, the conflict resolution mechanism is configured to:

create a new rule with a filter that defines the intersection of the set of packets associated with lower priority rule and the set of packets associated with the higher priority rule; and to

create an action list for the new rule by prepending the action list of the higher priority rule to the action list of the lower priority rule.

24. (Original) The apparatus of claim 19, wherein prior to modifying a rule in the set of network service rules, the conflict resolution mechanism is configured to clone the rule to ensure that potential conflicts with rules that appear later in the set of network service rules are not overlooked.

25. (Original) The apparatus of claim 19, wherein the priority of a given rule is based upon one or more of the following:

a priority associated with a network service from which given rule originated;

a count of the number of prefix bits specified by the filter for the given rule; and

a time stamp indicating when the given rule was incorporated into the set of network service rules.

26. (Original) The apparatus of claim 19, wherein an action specified by a network service rule can include, but is not limited to:

dropping a packet;

gathering statistical information about the packet;

controlling timer functions associated with the packet;

modifying the packet; and

passing the packet on.

27. (Original) The apparatus of claim 19, wherein the multiple network services can include, but is not limited to:

a firewall service;

a service level agreement monitoring service;

a load balancing service;

a transport matching service;

a failover service; and

a high availability service.